No. 795,219. PATENTED JULY 18, 1905.

E. E. GROVE.

FITTING FOR GAS BURNERS.

APPLICATION FILED FEB. 12, 1904.

Fig. 1.

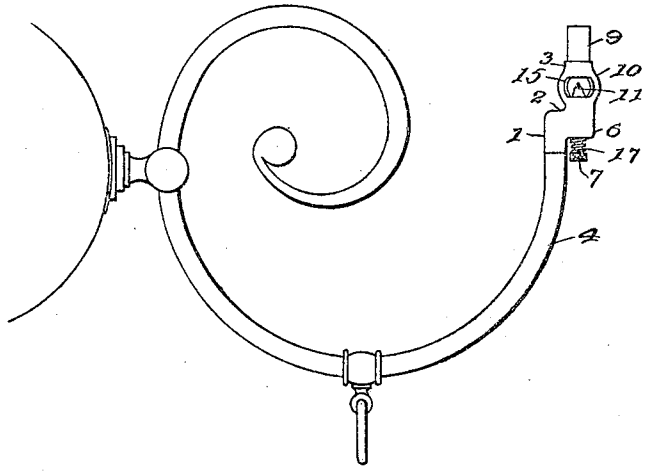


Fig. 2.

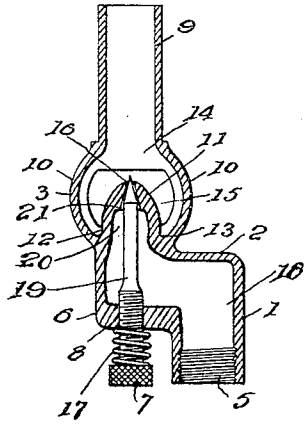
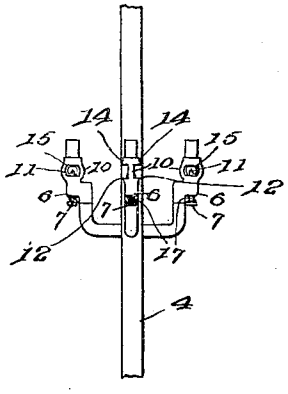


Fig. 3.



Witnesses

G. H. Walmsley.

Ivorine Miller.

Inventor

Elmer E. Grove,

By H. A. Toulmin,

Attorney

No. 795,219. Patented July 18, 1905.

UNITED STATES PATENT OFFICE.

ELMER E. GROVE, OF SPRINGFIELD, OHIO.

FITTING FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 795,219, dated July 18, 1905.

Application filed February 12, 1904. Serial No. 193,225.

To all whom it may concern:

Be it known that I, ELMER E. GROVE, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Fittings for Gas-Burners, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to fittings for gas-burners, and more particularly to that class of burners of the Bunsen type used in domestic lighting for burning a mixture of air and gas in connection with an incandescent mantle.

The object of the present invention is to provide a simple and inexpensive fitting which will be compact and readily accessible, in which the supply of gas may be readily regulated by a needle-valve, and which is adapted for direct connection with the ordinary bracket or chandelier supply-pipe.

To these and other ends my invention consists in certain novel features, which I will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a gas bracket or chandelier having my improved burner applied thereto. Fig. 2 is a central vertical sectional view of the same, and Fig. 3 is a view illustrating the burner applied to a group of pipes constituting part of a multiple-mantle lamp.

Referring to said drawings, the fitting, which is preferably formed in a single piece so far as its body is concerned, comprises a vertical portion 1, a horizontal portion 2 at the top thereof, and a second vertical portion 3, from which the first vertical portion 1 is offset, the central axial lines of the parts 1 and 2 being parallel, but not in alinement. The part 1 constitutes the means whereby the fitting is connected to the end of the supply-pipe, which latter is indicated at 4, and said part 1 has an opening at its lower end threaded, as indicated at 5, so as to permit it to be screwed upon the externally-threaded receiving end with which the supply-pipes are always provided. The base of the vertical part 3 forms an offset 6, through which there extends vertically a needle-valve 7, threaded into a vertical opening 8, extending upward from the under face of the offset 6. In this way the needle-valve is vertically arranged, lying close to the part 1 and in central alinement with the part 3, the upper part of which (indicated at 9) forms the mixing-tube.

Heretofore, so far as I am aware, where needle-valves have been employed they have either been arranged horizontally, which materially increases the lateral dimensions of the fixture, or if arranged vertically it has been necessary to employ special brackets, pipes having complicated reverse bends or curves, or complicated operating mechanism between the parts grasped by the hand of the operator and the body of the needle-valve itself. All of these complications are done away with by offsetting the upper part of the fixture relatively to the lower part and threading a vertical needle-valve upward through the horizontal bottom of the offset thus formed.

The mixing-tube 9 is supported by means of two outwardly-bowed arms 10, the inner faces of which are preferably concaved, as shown more particularly in Fig. 2, to increase the effective area of the chamber surrounding the gas-discharge nozzle 11. This latter extends upward in said chamber, being convex in vertical section and being surrounded at its base by a cup-like flange 12, forming an annular groove 13. The lower end of the mixing-tube 9 is surrounded by a similar cup-like flange 14, so that there is formed around the nozzle 11 a substantially spherical chamber having large openings 15 at each side, formed by cutting away or omitting a large portion of the opposite walls of the sphere to form the bowed arms 10. I have found in practice that a chamber of this form materially increases the efficiency of the burner by the facility with which it admits the currents of air induced by the passage of the jet of gas from the jet-aperture 16 of the nozzle 11 and by the resulting intimacy of the mixture formed in the mixing-tube 9.

The needle-valve may be provided with a spring 17 to take up lost motion and keep the threads tightly in contact with each other.

It will be understood, of course, that the mixing-tube 9 is to receive the usual gallery to support the mantle, the chimney or globe,

and the remaining portions of the lamp which are usually mounted thereon. The flange 14 serves as a shoulder or abutment on which the gallery may rest.

It will be observed that the gas passage or conduit in the tubular part 1, and which is of the full diameter of the passage of the supply-pipe, which is indicated by the numeral 18, is extended through the horizontal portion 2, where it is indicated by the reference-numeral 19, without being substantially contracted, and said gas-passage is further extended up around the cylindrical portion of the needle-valve, as indicated at 20, the separate extension being of considerably greater diameter than the inclosed portion of the needle-valve and terminating at the base or portion of largest diameter of the conical port or opening 21 of the needle-valve. By reason of this construction constricted passages between the supply-pipe and the needle-valve port are avoided, so that the gas in its passage to the needle-valve port is not unduly retarded by friction with the walls of the conduit and the gas is delivered at the entrance of the needle-valve port with a pressure substantially equal to that of the supply-pipe. In burners controlled by needle-valve the construction is usually such that the pressure is materially reduced at the entrance to the needle-valve port, and owing to the fineness of regulation obtained and employed in practice where a needle-valve is used the gas-supply is frequently inefficient with this fine regulation, owing to the lack of pressure at the entrance to the needle-valve port. This difficulty is avoided by the construction which I have just described.

I do not wish to be understood as limiting myself strictly to the precise details of construction hereinbefore described, and shown in the accompanying drawings, as the same may obviously be modified without departing from the principle of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An article of manufacture consisting of a fixture for direct application to gas-brackets, chandelier-arms, and the like, comprising an integral body having a gas-passage therethrough, the lower and upper portions being vertical and laterally offset relatively to each other, the lower portion being threaded to adapt it for attachment to the supply-pipe, the upper portion having a mixing-tube, air-inlet openings below the same, and a gas-jet nozzle, and a needle-valve arranged in vertical central alinement with the upper portion, threaded through the bottom of the offset, and having its lower portion exposed for direct manipulation, its upper or operative end extending into the jet-nozzle, substantially as described.

2. An article of manufacture consisting of a fixture for direct application to gas-brackets, chandelier-arms, and the like, comprising an integral body having a gas-passage therethrough, the lower and upper portions being vertical and laterally offset relatively to each other, the lower portion being threaded to adapt it for attachment to the supply-pipe, the upper portion having a mixing-tube, bowed and concaved arms connecting said mixing-tube with the offset, cup-like flanges above and below said arms, whereby a substantially spherical chamber having open opposite sides is formed, a jet-nozzle convex in vertical section extending from the top of the offset into said chamber, and a needle-valve arranged in vertical central alinement with the mixing-tube, threaded through the bottom of the offset, having its upper or operative end extending into the jet-nozzle, and its lower portion exposed for direct manipulation below the offset, substantially as described.

3. An article of manufacture comprising a fixture for direct application to gas-brackets, chandelier-arms, and the like, comprising an integral body having a gas-passage therethrough, the lower and upper portions being vertical and laterally offset relatively to each other, the lower portion being threaded to adapt it for attachment to the supply-pipe, the upper portion having a mixing-tube, air-inlet openings below the same, and a gas-jet nozzle having a conical or tapering outlet-port, the gas-conduit extending through the vertical and horizontal portion without material constriction, and also extending up into the nozzle to the base of the gas-outlet port, and a needle-valve arranged in vertical central alinement with the upper portion, threaded through the bottom of the offset, and having its lower portion exposed for direct manipulation, its conical upper end extending into the outlet-port, and its body being of less diameter than the upper extension of the gas-conduit, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ELMER E. GROVE.

Witnesses:
E. O. HAGAN,
IRVINE MILLER.